

RESUMO N° 289

## **A QUALITATIVE ANALYSIS OF FLUID SIMULATION USING A SPH VARIATION**

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Fluid simulation using meshless methods has increasingly become a robust way to solve mechanics problems that require dealing with large deformations, in that way, it is briefly shown what the main challenges and advances in the area are. The smoothed particle hydrodynamics (SPH) is then introduced. One of its variations is the Weakly Compressible SPH (WCSPH), which was used as a baseline to implement the method used in this work, called XSPH. Finally, four usual test cases of fluid simulation are analyzed: the lid-driven cavity flow, the dam break, the Poiseuille flow and the elliptic drop. The analysis concluded that the method used in this work performs at least as well as the most reliable and accurate models, and in some aspects performs better.